

CLAIMS

1. A non-lethal nose cone adapted for use with a projectile having a kinetic energy reduction system, the nose cone comprising:

a nose cone body having a circular cross section, the nose cone body being continuously radiused from a first end comprising a tip to a second end comprising an abutment ring, said nose cone body including a plurality of designed failure areas;

an integral fuze cavity disposed within the nose cone body proximate the abutment ring;  
and

an internal projection surface having a circular cross-section extending axially from the abutment ring, the internal projection surface having an external diameter less than an internal diameter of a fuselage of the projectile.

2. The non-lethal nose cone of claim 1 wherein the second end of the nose cone body further includes a retaining lip that extends axially aft of the abutment ring, said retaining lip defining an outboard side of a retaining recess so that when the internal projection surface is disposed within the fuselage of the projectile, said fuselage defining an inboard side of the retaining recess.

3. The non-lethal nose cone of claim 1 wherein the plurality of designed failure areas are grooves, said grooves scored or molded into the nose cone body.

4. The non-lethal nose cone of claim 3 wherein the plurality of grooves are present on an external face of the nose cone body.

5. The non-lethal nose cone of claim 3 wherein the plurality of grooves are present on an internal face of the nose cone body.
6. The non-lethal nose cone of claim 1 wherein the plurality of designed failure areas are defined by a composite fiber distribution of the nose cone body.
7. The non-lethal nose cone of claim 1 wherein the internal projection surface of the nose cone body threadably mates with the fuselage of the projectile
8. A projectile for delivering a non-lethal payload, the projectile comprising:
  - a nose cone including a nose cone body, an internal projection surface, and an integral fuse cavity, said nose cone body having a plurality of designed failure areas;
  - a projectile body comprising a payload section and a tail section, the payload section having a circular cross-section adapted to receive the internal projection surface of the nose cone, said payload section for storing a non-lethal payload, and
  - a kinetic energy reduction system coupled to the projectile body.
9. The projectile of claim 8 wherein the integral fuze cavity is disposed about the circumference of the nose cone body so as to maintain an open internal passage between the payload section and the nose cone tip.

10. The projectile of claim 8 wherein the plurality of designed failure areas are a plurality of seams disposed so that upon impact from the payload the nose cone body opens at the plurality of seams to allow passage of the payload.
11. The projectile of claim 10 wherein the plurality of seams are grooves, said grooves scored or molded into the nose cone body.
12. The projectile of claim 11 wherein the plurality of grooves are present on an external face of the nose cone body.
13. The projectile of claim 11 wherein the plurality of grooves are present on an internal face of the nose cone body.
14. The projectile of claim 10 wherein the plurality of seams are defined by a composite fiber distribution of the nose cone body.
15. The projectile of claim 8 wherein the plurality of designed failure areas are disposed so that upon impact from the payload the nose cone body disintegrates into a plurality of particles, said plurality of particles achieving a non-lethal kinetic energy value during a descent.
16. The projectile of claim 8 wherein the kinetic energy reduction system includes a plurality of deployable wings.

17. The projectile of claim 8 wherein the kinetic energy reduction system includes a parachute.

18. A method for delivering a non-lethal payload with a standoff delivery weapon system comprising:

loading a projectile with said non-lethal payload into the standoff delivery weapon system;

delivering the projectile to a location generally above a desired target, the projectile comprising a frangible nose cone coupled to a generally cylindrical payload body and a kinetic energy reduction system, said payload body adapted for carrying a non-lethal munition; and

deploying the kinetic energy reduction system to rapidly decelerate the fall rate of the projectile to below a non-lethal velocity;

releasing the non-lethal payload from its launch position; and

propelling the non-lethal payload through the frangible nose cone.

19. The method of claim 18 wherein the frangible nose cone includes a plurality of designed failure areas.

20. The method of claim 19 wherein the plurality of designed failure areas are grooves, said grooves scored or molded into the nose cone body.

21. The method of claim 20 wherein the plurality of grooves are present on an external face of the nose cone body.

22. The method of claim 20 wherein the plurality of grooves are present on an internal face of the nose cone body.

23. The method of claim 19 wherein the plurality of designed failure areas are defined by a composite fiber distribution of the frangible nose cone.

24. The method of claim 19 wherein the plurality of designed failure areas are disposed so that the frangible nose cone disintegrates into a plurality of particles, said plurality of particles achieving a non-lethal kinetic energy value during a descent.